Flipping crystals leads to better solar products

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In a step that could bring perovskite crystals closer to use in the burgeoning solar power industry, researchers from a joint Los Alamos National Laboratory, Northwestern University and Rice University research study have tweaked their crystal production method and developed a new type of 2-dimensional layered perovskite with outstanding stability and more than triple the material's previous power conversion efficiency.

"Crystal orientation has been a puzzle for more than two decades, and this is the first time we've been able to flip the crystal in the actual casting process," said Hsinhan Tsai, a Rice University student and Graduate Research Associate at Los Alamos, working with senior researcher Aditya Mohite and lead coauthor of a paper due out this week in the journal Nature. "This is our breakthrough, using our spin casting technique to create layered crystals whose electrons flow vertically down the material, without being blocked, midlayer, by organic cations."


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